

RUSSELL et al
Appl. No. 09/937,715
December 1, 2004

REMARKS/ARGUMENTS

Claims 20 and 22-27 stand allowed, and claims 1-19 and 30 rejected. Applicants offer a minor amendment to claim 1 and newly written claims 31 and 32. Therefore, claims 1-20, 22-27 and 30-32 are the only claims remaining in this application.

The Examiner's consideration of the prior art submitted in Applicants' Information Disclosure Statement filed January 7, 2004 is very much appreciated.

Similarly, the Examiner's indication that claims 20 and 22-27 are allowed is appreciated.

Claims 1, 2, 5 and 7 stand rejected under 35 USC §102 as being anticipated by Borrelli (U.S. Patent 6,496,632). Because most of the arguments contained in sections 4, 5 and 6 of the Official Action are identical to the similar arguments made in section 5 of the previous Official Action, Applicants' response submitted June 21, 2004 regarding the Borrelli patent is herein incorporated by reference (see arguments over Borrelli reference on pages 8 and 9).

However, in the final rejection, the Examiner adds a new argument stating that a "functional 'whereby' statement does not define any structure and accordingly cannot serve to distinguish" citing the *In re Mason* decision of the Court of Customs and Patent Appeals in 1957. Actually, the more recent decisions of the Court of Appeals for the Federal Circuit are perhaps more pertinent, and Applicants draw the Examiner's attention to *Texas Instruments Inc. v. International Trade Commission*, 26 USPQ2d 1018, 1023 which held that the "whereby" clause is given no weight only in the circumstance where

RUSSELL et al
Appl. No. 09/937,715
December 1, 2004

it adds nothing to the patentability or substance of the claim. Specifically, the Court held "a 'whereby' clause that merely states the result of the limitations in the claim adds nothing to the patentability or substance of the claim."

In the "whereby" clause set out in Applicants' previous claim 1, if it is to be ignored by the Examiner, then this requires a finding by the Examiner that the "whereby" clause merely states "the result of the limitations in the claim" without the "whereby" clause present. Applicants believe that the result of light being "substantially confined in the lower refractive index region by virtue of a photonic band gap of the cladding material and is guided along the fibre" is indeed a result of the previous recitations. Because the Examiner ignores the "whereby" clause, he is presumed to agree that the function of the claimed combination of elements is clearly set forth previously in the claims, in order to make that conclusion.

In either event (whether or not the claim specifies the inherent result of the combination of claimed elements), the Examiner must demonstrate where the prior art teaches "substantially confined in the lower refractive index region by virtue of a photonic band gap of the cladding material and is guided along the fibre." Furthermore, it is incumbent upon the Examiner to point out how or where the prior art references recite the region of substantially uniform lower refractive index surrounded by cladding which includes non-coaxial regions of higher refractive index which is substantially periodic and wherein "the region of lower refractive index has a longest transverse dimension which is longer than a single shortest period of the cladding" where these

RUSSELL et al
Appl. No. 09/937,715
December 1, 2004

elements inherently combine to form the "whereby" clause. If these elements do inherently combine to form the structure which provides the result of the "whereby" clause, then the "whereby" clause can be ignored, but the recited combination and their inherent function cannot be ignored because this structural interrelationship is recited in the claim. If, on the other hand, if the function of the combination of elements is not inherent in the recitation of the claim, then the "whereby" clause which does recite the result of the interrelationship of the claimed elements may not be ignored by the Examiner (since it is presumably does not recite "the necessary results of what is recited in the claims" *Id* at 1023).

Accordingly, whether or not the Examiner ignores the "whereby" clause, the result is the same and the interrelationship of the claimed elements must be given proper weight in any interpretation of independent claim 1. Reconsideration of the previous language of claim 1 is respectfully requested. However, to assist the Examiner, Applicants have offered a slight revision to the wording of claim 1 to specify that the longest transverse dimension is "sufficiently large" to provide the interrelationship between elements and the consequence set out in the previously recited "whereby" clause.

The Examiner's attention is directed to Section 2173.05(c) of the Manual of Patent Examining Procedure (MPEP) which indicates that most recent cases before the Board of Patent Appeals and the Court of Appeals for the Federal Circuit has held that a limitation such as "an effective amount" is definite when read in light of the supporting disclosure. In this instance, a similar reading must be given to the recitation of the "longest

RUSSELL et al
Appl. No. 09/937,715
December 1, 2004

transverse dimension which is longer than a single, shortest period of the cladding" in order to provide that "light is substantially confined in the lower refractive index region by virtue of a photonic band gap of the cladding material and is guided along the fibre." Accordingly, while Applicants believe the finally rejected language of claim 1 positively recites the interrelationship between structures so as to provide the recited benefit in the claim, the minor wording change to claim 1 should be sufficient to overcome any arguments as to the "whereby" clause and still clearly indicate the claimed interrelationship between elements.

There are a number of additional arguments which clearly establish that the Borrelli reference is not applicable to the subject matter recited in Applicants' independent claim 1. For example, Borrelli shows a fiber in Figure 7 which, in accordance with the Borrelli description, must have a hollow core. It is noted, though, that Borrelli fails to contain any disclosure about the hollow core's function or about its dimensions (see column 8, line 63 to column 9, line 2). As a result, there is no suggestion that the hollow core 58 should have a "longest transverse dimension which is longer than a single, shortest, period of the cladding," let alone that the longest transverse dimension is sufficiently large to provide that "light is substantially confined in the lower refractive index region by virtue of a photonic band gap of the cladding material." How or where the Examiner believes this positively claimed interrelationship is shown in Borrelli is not seen and clarification is respectfully requested.

RUSSELL et al
Appl. No. 09/937,715
December 1, 2004

Additionally, the Examiner has identified no disclosure in Borrelli which would direct a person of ordinary skill in the art to provide a fiber as set out in Applicants' independent claim 1. No functions of the Borelli fiber have been disclosed (which would cause one to chose the structural relationships set out in the claim). Indeed, one of ordinary skill in the art would disregard the drawing of the fiber illustrated in Figure 7 of Borrelli as merely speculation as to a possible embodiment. Specifically, the language which discusses the fiber of Figure 7 ("a contemplated waveguide structure which is thought to be of interest is illustrated in Fig. 7" (column 8, lines 63-64)) is completely speculative and contains no indication that it would be operative or suitable for the purpose of guiding light. Yet, this is the primary reference upon which the Examiner relies in the rejection of claim 1.

The Examiner's attention is directed to Section 2125 of the Manual of Patent Examining Procedure which indicates that drawings and pictures can anticipate claims if they clearly show the structure which is claimed. However, also stated in the MPEP is the fact that in order to be an anticipatory reference, "the picture must show all the claimed structural features and how they are put together" (emphasis added) with the MPEP citing *Jockmus v. Leviton*, 28 F.2d 812 (2nd Circuit 1928).

By reference to Figure 7, hollow core 58 passes through the number of circles 60 and apparently represent the periodic dielectric constant array embedded in the glass 62. The specification goes on to say that the circles represent either channels or glass filaments extending along the waveguide length. Again, there is no teaching as to where

RUSSELL et al
Appl. No. 09/937,715
December 1, 2004

there are regions of lower and higher refractive index, that there are "non-coaxial regions of higher refractive index which are substantially periodic" or where "the regions of lower refractive index has a longest transverse dimension which is longer than a single, shortest, period of the cladding."

None of the above structural limitations are disclosed in the Borrelli Figure 7 or in the accompanying discussion in the specification. The Examiner has not pointed out how or why a person of ordinary skill in the art would read into the Figure 7 disclosure the additional structural interrelationships which are recited in Applicants' independent claim 1. As a result, Borrelli simply fails to illustrate the structure recited in Applicants' claims 1, 2, 5 and 7 and any further rejection thereunder is respectfully traversed.

Claims 3, 4, 6, 8-19 and 30 stand rejected as being obvious over the Borrelli reference. Inasmuch as these claims either depend from claim 1 or incorporate similar limitations as those set forth above with respect to claim 1, the above arguments distinguishing claim 1 over the Borrelli reference are herein incorporated by reference.

Specifically with respect to claim 10, the Examiner suggests that a person of ordinary skill in the art would combine the large core feature from Borrelli's Figure 6 with the fiber shown in Figure 7. This assumption is incorrect for a number of reasons. Firstly, as noted above, the fiber in Figure 7 is purely speculative and in Borrelli it is a "contemplated" waveguide structure which is only "thought to be of interest." As noted above, there is no indication that this is an operable embodiment or indicative of any operable embodiment. Secondly, Borrelli contains no disclosure of how or in what

RUSSELL et al
Appl. No. 09/937,715
December 1, 2004

manner any light in the Figure 7 fiber would be conducted. There is no indication that the materials are put together so as to provide a photonic band gap of the cladding material which confines the light to the lower refractive index region. Applicants have already noted in the discussion of existing prior art (see the specification page 2, line 22 to page 3, line 10) that if one does not know how the light is propagating in the fiber, he would not know how and why he should or could combine any feature from the Borrelli Figure 6 with the proposal of Figure 7.

Thirdly, the fiber shown in Figure 6 of Borrelli has a glass core for propagating a single mode. There is no disclosure of what size the glass core would be in order to propagate such single mode light. Even if one were going to substitute the hollow core in Figure 7 for the glass core in Figure 6 of Borrelli, there is no indication of how or where the interrelationships (between the higher and lower refractive index regions) which are specifically set out in Applicants' claim 10, would be known or obvious from the Borrelli reference itself. Accordingly, there is simply no support for the rejection of claims 3, 4, 6, 8-19 and 30 and any further rejection thereunder is respectfully traversed.

Applicants offer newly written claims 31 and 32. Independent claim 31 specifies that the longest transverse dimension of the region of lower refractive index is at least 9 μm . Claim 32 is a more properly worded claim analogous to claim 1, but written more in accordance with U.S. claim drafting practices. Entry and consideration of these two newly written claims is respectfully requested.

RUSSELL et al
Appl. No. 09/937,715
December 1, 2004

Entry of the Amendment Under Rule 116

Entry of the above amendment under Rule 116 is respectfully requested. While Applicants do not believe that the amendment to claim 1 is needed to define over the prior art Borrelli reference, the amendment does clarify that it is the operational interrelationship between the claimed elements which provides the benefit of the presently claimed invention.

The amendment to claim 1 does not attempt to add new matter to the claims, nor does it create any indefiniteness in the claims. Entry of the amendment arguably reduces the issues upon appeal, in that it eliminates the need for arguing the issue of the propriety of a "whereby" clause and avoids the need for a decision as to whether *In re Mason* or *Texas Instruments Inc.* are the proper references to state of the law regarding "whereby" clauses.

Entry and consideration of the two newly written claims is also respectfully requested. It is submitted that these claims merely specify either a more limited version of independent claim 1 (claim 31 limits the longest transverse dimension to at least 9 μm as disclosed on page 9, line 18 of the specification) or more succinctly specifies the subject matter of Applicants' claim (claim 32 is more of a short-hand version of independent claim 1).

As such, neither of these new claims raise issues requiring further consideration and/or search. They are of a claim scope similar to the claim scope of independent claim

RUSSELL et al
Appl. No. 09/937,715
December 1, 2004

1 which has already been thoroughly searched and reviewed by the Examiner. No additional searching or consideration should be required.

Accordingly, pursuant to the provisions of Rule 116, entry of the above amendment is respectfully requested.

Having responded to all rejections and rejections set forth in the outstanding Official Action, it is submitted that claims 1-20, 22-27 and 30-32 are in condition for allowance and notice to that effect is respectfully solicited. In the event the Examiner is of the opinion that a brief telephone or personal interview will facilitate allowance of one or more of the above claims, she is respectfully requested to contact Applicants' undersigned representative.

Respectfully submitted,

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